

USSN 10/613,370

Reply to Office Action dated: April 18, 2006

Amendment D dated: June 21, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claims 1-7 are original claims.

Claim 8 has been allowed as previously presented.

Claims 9-14 are original claims and are allowed.

Claim 15 has been canceled.

Claim 16 has been allowed as previously presented.

Claim 17 is an original claim.

Claim 18 has been canceled.

Claims 19 and 20 are original claims and are allowed.

Claims 21 and 22 are currently amended.

Claims 23 and 24 have been previously indicated to contain allowable subject matter but claim 23 has been amended to change its dependency.

Claims 25 and 26 are new and comprise the subject matter of claims 23 and 24 as presented in Amendment C previously filed which were indicated to contain allowable subject matter subject to being rewritten into independent form to alter the dependency as required by the Examiner.

1. (Previously presented) An automatic sliding door closure device, the device comprising:

a housing sized and shaped for attachment to an end of a sliding door during use;

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a pulley rotatably mounted within the housing;

a first gear rotatably mounted within the housing having a plurality of radially spaced teeth;

a cable having an exterior end for attachment to a door frame during use and an interior end connected to the first gear rotating the first gear during use;

tensioning means engaged with the first gear tensioning movement of the first gear;

a second gear within the housing having a plurality of radially spaced teeth in meshed relation with the teeth of the first gear;

second tensioning means engaged with the second gear tensioning movement of the second gear during movement of the second gear in an opposite direction from movement of the first gear;

a connecting arm connected to the housing;

an airtight cylinder oriented parallel with a sliding door track of the sliding door during use having a hollow interior cavity;

a plunger arm connected to the connecting arm sized and shaped for movement within the hollow interior cavity of the airtight cylinder;

a flexible member connected to the plunger arm slidably contacting walls of the hollow interior cavity of the airtight cylinder; and

an airflow control valve within a wall of the airtight cylinder.

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2. (Original) The device of claim 1 wherein the first gear has a pulley portion aligned with the pulley for keeping the cable on a front face of the first gear and the tensioning means engages the first gear at a back face of the first gear.
3. (Original) The device of claim 2 further comprising a guide channel between the pulley and the first gear sized and shaped to receive the cable.
4. (Original) The device of claim 3 wherein the second tensioning means engages a front face of the second gear and further comprises a third tensioning means engaging a back face of the second gear tensioning movement of the second gear during movement.
5. (Original) The device of claim 4 wherein the airflow control valve is located in one end of the airtight cylinder and further comprises an airtight seal about the plunger arm located in an opposite end of the airtight cylinder from the airflow control valve.
6. (Original) The device of claim 5 further comprising a plunger arm side bracket sized and shaped to receive an end of the airtight cylinder having an aperture through the bracket for movement of the plunger arm within the aperture during use.
7. (Original) The device of claim 6 further comprising an airflow control valve side bracket sized and shaped to receive an end of the airtight cylinder having an aperture

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through the bracket providing an opening for airflow into and out of the airflow control valve.

8. (Previously presented) An automatic sliding door closure device in combination with a sliding door, the combination comprising:

a sliding door track within a door opening having a door frame;

a sliding door slidably engaged with the sliding door track;

a housing attached to an end of the sliding door;

a pulley rotatably mounted within the housing;

a first gear rotatably mounted within the housing having a plurality of radially spaced teeth;

a cable having an exterior end for attachment to the door frame and an interior end connected to the first gear, the cable rotating the first gear when the sliding door is slid along the sliding door track;

tensioning means engaged with the first gear tensioning rotation of the first gear as the sliding door is slid along the sliding door track;

a second gear rotatably mounted within the housing having a plurality of radially spaced teeth in meshed relation with the teeth of the first gear, the second gear rotating in an opposite direction from the rotation of the first gear;

second tensioning means engaged with the second gear tensioning rotation of the second gear as the sliding door is slid along the sliding door track;

a connecting arm connected to the housing;

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an airtight cylinder oriented parallel with the sliding door track of the sliding door having a hollow interior cavity;

a plunger arm connected to the connecting arm sized and shaped for movement within the hollow interior cavity of the airtight cylinder as the sliding door is slid along the sliding door track;

a flexible member connected to the plunger arm slidably contacting walls of the hollow interior cavity of the airtight cylinder for creating an air cushion within the airtight cylinder; and

an airflow control valve within a wall of the airtight cylinder for controlling intake and outlet of air into the airtight cylinder, the airflow control valve controlling closure speed of the sliding door.

9. (Original) The device of claim 8 further comprising a guide channel between the pulley and the first gear sized and shaped to receive the cable.

10. (Original) The combination of claim 9 wherein the first gear has a pulley portion aligned with the pulley for keeping the cable on a front face of the first gear and the tensioning means engages the first gear at a back face of the first gear.

11. (Original) The combination of claim 12 wherein the second tensioning means engages a front face of the second gear and further comprises a third tensioning means

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engaging a back face of the second gear tensioning movement of the second gear during movement.

12. (Original) The combination of claim 11 wherein the airflow control valve is located in one end of the airtight cylinder and further comprises an airtight seal about the plunger arm located in an opposite end of the airtight cylinder from the airflow control valve.
13. (Original) The combination of claim 12 further comprising a plunger arm side bracket sized and shaped to receive an end of the airtight cylinder having an aperture through the bracket for movement of the plunger arm within the aperture during use.
14. (Original) The combination of claim 13 further comprising an airflow control valve side bracket sized and shaped to receive an end of the airtight cylinder having an aperture through the bracket providing an opening for airflow into and out of the airflow control valve.
15. Canceled.
16. (Previously presented) An automatic sliding door closure device, the device comprising:

a cable having a first end attached to a door frame during use;

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at least one tensioning means connected to a sliding door during use, the tensioning means tensioned by the cable during use;

an air piston including a piston rod linked to the tensioning means, said piston rod causing a pushing action as the piston rod is moved into the said air piston thus providing a controlled release of the tension in the tension means to control closure speed of the sliding door using use; and

a first gear engaged with the tensioning means, the tensioning means tensioning rotation of the first gear.

17. (Original) The device of claim 16 wherein the first gear has a pulley portion for keeping the cable on a front face of the first gear.

18. Canceled.

19. (Original) The device of claim 17 further comprising a second gear engaged with the first gear and second tensioning means tensioning rotation of the second gear.

20. (Original) The device of claim 19 wherein the air piston further comprises a flexible member slidably contacting inner walls of the piston creating an air cushion within the air piston during use.

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21. (Currently amended) An automatic sliding door closure device, the device comprising:

a first gear including a pulley;

a cable having a first end [attached] for attachment to a top of a horizontal door frame during use and with an opposite end of the cable directly connected to the pulley, the cable being wound with multiple turns on the pulley, the cable and the pulley being operationally oriented during operation with the cable winding and unwinding off the pulley;

at least one tensioning means [connected] for connection to a sliding door during use, the tensioning means tensioned by the cable during use;

[a] the first gear engaged with the tensioning means, the tensioning means tensioning rotation of the first gear; and

an air tight cylinder having an air piston, which are generally shaped and constructed to be oriented parallel with a sliding door track of a sliding door, said air piston linked to the tensioning means providing controlled release of the tension in the tensioning means controlling closure speed of [the] a sliding door during use.

22. (Currently amended) The device of claim 21, wherein the first gear has a pulley portion for keeping the cable on a front face of the first gear, the air piston further having means for creating an air cushion within the air piston during use.

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23. (Currently amended) The device of claim [22] 21 , further comprising a second gear engaged with the first gear and second tensioning means tensioning rotation of the second gear.

24. (Previously presented) The device of claim 23, wherein the air piston further comprises a flexible member slidably contacting inner walls of the piston creating an air cushion within the air piston during use.

25. (New) An automatic sliding door closure device, the device comprising:

a cable having a first end attached to a door frame during use;

at least one tensioning means connected to a sliding door during use, the tensioning means tensioned by the cable during use;

a first gear engaged with the tensioning means, the tensioning means tensioning rotation of the first gear;

an air piston linked to the tensioning means providing controlled release of the tension in the tensioning in the tensioning means controlling closure speed of the sliding door during use;

the first gear has a pulley portion for keeping the cable on a front face of the first gear; and

a second gear engaged with the first gear and second tensioning means tensioning rotation of the second gear.

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26. (New) The device of claim 25, wherein the air piston further comprises a flexible member slidably contacting inner walls of the piston creating an air cushion within the air piston during use.